

**REMARKS**

The Office Action mailed June 19, 2007, has been received and reviewed. Claims 1 through 9, 11 through 74, 179 through 186, and 189 through 193 are currently pending in the application. Claims 1 through 9, 11 through 74, 190, and 192 are allowed. Claims 179 through 186, 189, 191, and 193 stand rejected. Applicants have amended claims 179 and 189, and respectfully request reconsideration of the application as presented herein in view of the remarks set forth below.

**Interview Summary**

On July 12, 2007, Susan Carter (for J. Jeffrey Gunn) contacted Examiner Shane Bomar by telephone to point out that U.S. Patent No. 6,817,633 had been relied upon as prior art in an Office Action but had not been listed on any PTO form 892 or 1449. Examiner Bomar found this to be correct and mailed an Office communication on July 23, 2007 that included an Interview Summary and a PTO form 892 listing U.S. Patent No. 6,817,633, issued November 16, 2004 to Brill et al., as a cited reference.

**35 U.S.C. § 102(b)(a) Anticipation Rejections**

**Anticipation Rejection Based on U.S. Patent No. 6,062,326 to Strong et al.**

Claim 189 stands rejected under 35 U.S.C. § 102(b) as being anticipated by Strong et al. (U.S. Patent No. 6,062,326). Applicants respectfully traverse this rejection, as hereinafter set forth.

A claim is anticipated only if each and every element as set forth in the claim is found, either expressly or inherently described, in a single prior art reference. *Verdegaal Brothers v. Union Oil Co. of California*, 2 USPQ2d 1051, 1053 (Fed. Cir. 1987). The identical invention must be shown in as complete detail as is contained in the claim. *Richardson v. Suzuki Motor Co.*, 9 USPQ2d 1913, 1920 (Fed. Cir. 1989).

As an initial matter, Applicants reassert the arguments set forth at pages 24 through 26 of the Amendment filed May 31, 2007 that Strong et al. does not describe a polycrystalline diamond cutting element positioned in rotational alignment with a tungsten carbide cutting element, as

recited in claim 189 as previously presented. Nonetheless, in an effort to expedite prosecution of the application to allowance, Applicants have amended claim 189 to include the further language of “in a groove formed by the at least one cutting element of the first plurality of cutting elements.” Applicants expressly reserve the right to prosecute claims like claim 189, as previously presented herein, in this or any related continuing application.

Applicants assert that claim 189, as currently amended, is not anticipated by Strong et al. because Strong et al. does not expressly or inherently describe “at least one cutting element of [a] second plurality of cutting elements...positioned in rotational alignment with at least one cutting element of [a] first plurality of cutting elements..., the at least one cutting element of the second plurality of cutting elements positioned to rotationally follow the at least one cutting element of the first plurality of cutting elements **in a groove formed by the at least one cutting element of the first plurality of cutting elements** when the casing bit is rotated during a drilling operation,” as recited in claim 189 as currently amended.

Strong et al. describes, with reference to Figure 4 thereof, primary cutting structures that include polycrystalline diamond compact (PDC) elements 48. *Strong et al.*, column 3, line 65 – column 4, line 4. “The PDC’s 48 are located along the tapered forward portions of the flutes 42.” *Id.*, column 4, lines 8-9. Furthermore, “[t]he rearward portions 46 of the flutes 42 extending along the sides of the casing 32 are configured as stabilizing pads and may be provided with hard facings of material such as tungsten carbide, and “[t]he trailing ends of the flutes 46 may also be provided with abrasive elements 49 of material such as aggressive tungsten carbide.” *Id.*, column 4, lines 9-14.

Strong et al. also describes secondary cutting structures 44, “incorporated in the rounded nose 36 and intended primarily for the displacement of unconsolidated materials.” *Strong et al.*, column 3, lines 61-64. As described by Strong et al., “[d]epending upon the type of obstructions expected to be encountered by the secondary cutting structures 44, cutting elements (not shown) such as tungsten carbide discs...might be incorporated therein...” *Strong et al.*, column 4, lines 26-30.

Strong et al. does not describe any cutting element 44 as being positioned to rotationally follow any cutting element 48 **in a groove formed by the cutting element 48** when the drill bit

is rotated during a drilling operation. Therefore, Strong et al. clearly does not describe a polycrystalline diamond cutting element positioned to rotationally follow a tungsten carbide element **in a groove formed by the** tungsten carbide cutting element.

As Strong et al. does not describe each and every element of claim 189, Applicants respectfully request that the Examiner withdraw the rejection of claim 189 under 35 U.S.C. § 102(b).

Anticipation Rejection Based on Paper No. WOCD-0306-05 to McKay et al. (Paper No. 1)

Claim 191 stands rejected under 35 U.S.C. § 102(a) as being anticipated by Paper No. WOCD-0306-05 to McKay et al. (Paper No. 1). Applicants respectfully traverse this rejection, as hereinafter set forth.

Applicants respectfully assert that independent claim 191 is not anticipated by Paper No. 1 under 35 U.S.C. § 102(a) because Paper No. 1 does not describe a casing bit that includes “at least one groove formed in at least one blade of [a] plurality of blades, the at least one groove configured to cause the **at least one blade** of the plurality of blades in which the at least one groove is formed **to separate into two or more smaller sections** when another drilling tool is used to drill through the casing bit,” as recited in independent claim 191.

The Examiner has asserted at Page 3 of the outstanding Office Action that “Figures 1 and 2 of paper #1, show grooves behind and between the cutting elements on the blades,” and that “[t]hese grooves would inherently cause the bit face to break into two or more smaller sections when the next drill bit drills through the first bit.” Thus, the grooves shown in the figures of Paper No. 1 do not inherently cause the blades to break into sections when being drilled through by the subsequent drilling tool.

"To serve as an anticipation when the reference is silent about the asserted inherent characteristic, such gap in the reference may be filled with recourse to extrinsic evidence. Such evidence must make clear that the missing descriptive matter is necessarily present in the thing described in the reference, and that it would be so recognized by persons of ordinary skill." *Continental Can Co. USA v. Monsanto Co.*, 948 F.2d 1264, 1268, 20 USPQ2d 1746, 1749 (Fed. Cir. 1991); MPEP § 2131.01. Applicants respectfully assert that the Examiner has failed to identify

any extrinsic evidence that makes clear the fact that the grooves behind and between the cutting elements on the blades of the bits shown in Figures 1 and 2 of Paper #1 would inherently cause the bit face to break into two or more smaller sections when the next drill bit drills through the first bit.

As there is no evidence that the grooves behind and between the cutting elements on the blades of the bits shown in Figures 1 and 2 of Paper #1 would inherently cause the bit face to break into two or more smaller sections when the next drill bit drills through the first bit, Paper #1 clearly cannot be considered to inherently describe at least one groove that is configured to cause at least one blade of a plurality of blades in which the groove is formed to separate into two or more smaller sections when another drilling tool is used to drill through the casing bit.

As Paper No. 1 does not describe each and every element set forth in claim 191, Applicants assert that claim 191 is not anticipated by Paper No. 1 and respectfully request that the Examiner withdraw the rejection of independent claim 191 under 35 U.S.C. § 102(a).

### **35 U.S.C. § 103(a) Obviousness Rejections**

#### Obviousness Rejection Based on U.S. Patent No. 4,351,401 to Fielder in view of U.S. Patent No. 6,817,633 to Brill et al.

Claim 179 stands rejected under 35 U.S.C. § 103(a) as being unpatentable over Fielder (U.S. Patent No. 4,351,401) in view of Brill et al. (U.S. Patent No. 6,817,633). Applicants respectfully traverse this rejection, as hereinafter set forth.

To establish a *prima facie* case of obviousness the prior art reference (or references when combined) **must teach or suggest all the claim limitations**. *In re Royka*, 490 F.2d 981, 985 (CCPA 1974); *see also* MPEP § 2143.03. Additionally, there must be “a reason that would have prompted a person of ordinary skill in the relevant field to combine the [prior art] elements” in the manner claimed. *KSR Int’l Co. v. Teleflex Inc.*, 127 S. Ct. 1727, 1742, 167 L.Ed.2d 705, 75 USLW 4289, 82 U.S.P.Q.2d 1385 (2007). Finally, to establish a *prima facie* case of obviousness there must be a reasonable expectation of success. *In re Merck & Co., Inc.*, 800 F.2d 1091, 1097 (Fed. Cir. 1986). Furthermore, the reason that would have prompted the combination and the reasonable expectation of success must be found in the prior art, common knowledge, or the nature of the problem itself, and not based on the Applicant’s disclosure. *DyStar Textilfarben*

*GmbH & Co. Deutschland KG v. C. H. Patrick Co.*, 464 F.3d 1356, 1367 (Fed. Cir. 2006); MPEP § 2144. Underlying the obvious determination is the fact that statutorily prohibited hindsight cannot be used. *KSR*, 127 S.Ct. at 1742; *DyStar*, 464 F.3d at 1367.

Applicants respectfully assert that Fielder and Brill et al., when combined, do not teach or suggest a casing bit having “an inner profile, at least a portion of the inner profile having a geometry configured to substantially match a geometry of at least a portion of a drilling profile of a leading face of another drilling tool for subsequently drilling through a portion of the casing bit,” as recited in independent claim 179 as currently amended.

Fielder teaches drill bits that are connected to a drill collar 2 of a conventional drilling string. *Fielder*, column 3, lines 60-62; column 5, lines 49-55; FIG. 1, FIG. 9. Fielder does not teach or suggest that either the drill bit shown in FIG. 1 or the drill bit shown in FIG. 9 is a casing bit, or has an inner profile, wherein at least a portion of the inner profile is configured to substantially match a geometry of at least a portion of a drilling profile of a leading face of another drilling tool for subsequently drilling through a portion of the casing bit. The teachings of Brill et al. do not satisfy the deficiencies.

Brill et al. teaches tubular casing members 20 that can be used to both drill and complete a wellbore. *Brill et al.*, column 4, lines 12-18. Brill et al. does not, however, teach or suggest a casing bit having at least a portion of an inner profile that is configured to substantially match a geometry of at least a portion of a drilling profile of a leading face of another drilling tool for subsequently drilling through a portion of the casing bit.

As Fielder and Brill et al., when combined, do not teach or suggest all the limitations of claim 179, Applicants respectfully assert that independent claim 179 could not have been obvious to a person of ordinary skill in the art at the time the invention was made considering Fielder in view of Brill et al., and request that the Examiner withdraw the rejection of independent claim 179 under 35 U.S.C. § 103(a).

Obviousness Rejection Based on U.S. Patent No. 6,062,326 to Strong et al. in view of U.S. Patent No. 6,702,045 to Elsby

Claims 180 through 186 stand rejected under 35 U.S.C. § 103(a) as being unpatentable over Strong et al. (U.S. Patent No. 6,062,326) in view of Elsby (U.S. Patent No. 6,702,045). Applicants respectfully traverse this rejection, as hereinafter set forth.

Applicants respectfully assert that Strong et al. and Elsby, when combined, do not teach or suggest a casing bit that includes “at least one gage section configured to define an outermost radius of the casing bit, the at least one gage section extending longitudinally from adjacent the nose portion, the at least one gage section configured to extend longitudinally adjacent **at least a portion of the separate casing section of the casing string** when the separate casing section is secured to the casing bit,” as recited in independent claim 180.

Strong et al. teaches a casing shoe 30 that includes a casing 32, a generally rounded nose portion 36, and an optional stabilizer portion 38. *Strong et al.*, column 3, lines 40-46. The casing 32 has “an internally threaded box portion 34 at its tail end, for connection to a casing string (not shown).” *Id.*

Strong et al. further teaches that:

The optional stabiliser portion 38 may be used to provide a particular directional response from the tool or to act as a pivot point to assist the tool in negotiating obstacles. In this example, the stabiliser comprises a plurality of spiral flutes 54, formed integrally with the casing 32. Alternatively, the stabiliser could be provided as a separate component (not shown), having its own threaded box and pin, which can be connected between the shoe 30 and the casing string. In this case the shoe itself could be substantially shorter in length than the illustrated example with its integral stabiliser 38. *Strong et al.*, column 4, lines 50-59.

Elsby teaches, with reference to FIG. 1, a “reverse circulation down hole face sampling hammer” drilling apparatus 10. *Elsby*, column 1, lines 3-5; column 4, lines 44-45. The apparatus 10 includes a hammer casing 11 within which is mounted a free piston motor of which the piston guide and porting sleeve 12 is shown in FIG. 1. *Elsby*, column 4, lines 45-47. A drive sub or chuck 13 is engaged with the hammer casing 11 by threads at 14. *Elsby*, column 4, lines

45-47. A drill bit 15 is mounted on the chuck 13. *Elsby*, column 4, lines 49-50. *Elsby* further teaches that:

The chuck 13 retains a gauge sleeve 24 by compressive engagement of an annular flange 25 between the end of the hammer casing 11 at 26 and a shoulder 27 machined on the chuck 13. Below the shoulder 27 the outer diameter of the chuck 13 is milled to form eight evenly spaced grooves that form conduits 30 with the lower portion 31 of the gauge sleeve 24. Each conduit 30 extends downward substantially parallel to the drill axis and is in fluid communication with the annular space 23 via cross-drilled ports 32. *Elsby*, column 4, lines 61 - column 5, line 2.

The Examiner asserts at pages 5-6 of the outstanding Office Action that:

[I]t would have been obvious to one of ordinary skill in the art...to modify the separate section of casing that the stabilizer is attached (as shown in col. 4, lines 54-59 taught by Strong et al. to include the gage section 24 of *Elsby*, in order to obtain additional conduits 30 between the separate section and the gage section (Fig. 1 of *Elsby*). One would have been motivated to make such a combination because the additional conduits will direct flushing fluids, such as air, directly to the cutting face rather than at the angles the prior art could only achieve without the passages (col. 1, line 65 through col. 2, line 10).

Applicants respectfully disagree with the Examiner's apparent characterizations of Strong et al. and *Elsby*, and with the Examiner's assertion that it would have been obvious to modify Strong et al. in the manner proposed by the Examiner.

It should be noted that Strong et al. teaches a casing bit, and that *Elsby* teaches a reverse circulation sampling hammer. Applicants respectfully assert that the casing bit taught by Strong et al. clearly is not suitable for use as the "drill bit 15" taught by *Elsby* because the casing bit 10 of Strong et al. is not configured for reverse circulation sampling hammer applications. For example, the casing bit 10 does not include a bit shank 16 having an anvil portion 22 (or any other feature) to allow axial movement of the bit shank 16 for hammering action. *See, Elsby*, column, 4, lines 50-56.

Furthermore, because the casing bit taught by Strong et al. clearly is not suitable for use in reverse circulation sampling hammer applications, those of ordinary skill in the art clearly would not be motivated to replace the optional stabilizer portion 38 of Strong et al., or any other

section of casing to which the casing bit 10 may be attached, with the gage section 24 of Elsby, as asserted by the Examiner, since the gage section 24 of Elsby has particular utility to reverse circulation sampling hammer applications. The gage section or sleeve 24 of Elsby is configured to be retained by the chuck 13 and the hammer casing 11 (*Elsby*, column 4, lines 61-64), and is used to define the air conduits 30, which are used for reverse circulation of air. *See e.g., Elsby*, column 5, lines 39-55. Strong et al. does not describe, teach, or suggest using the casing bit 10 in reverse circulation sampling hammer applications, and the casing bit 10 clearly is not configured for use in such applications. Therefore, those of ordinary skill in the art would not have been motivated to add a retention sleeve 24 of Elsby to the casing bit 10 of Strong et al.

Furthermore, those of ordinary skill in the art clearly would not consider the retention sleeve 24 of Elsby to be a “separate casing section of a casing string,” as recited in claim 180. Elsby does not teach or suggest that the retention sleeve 24 of Elsby may be used in any way for casing a wellbore. Therefore, even assuming for the sake of argument that it would have been obvious to replace the optional stabilizer portion 38 of Strong et al., or any other section of casing to which the casing bit 10 may be attached, with the gage section 24 of Elsby, as asserted by the Examiner, the resulting structure clearly would not include a casing bit having “at least one gage section configured to define an outermost radius of the casing bit, the at least one gage section extending longitudinally from adjacent the nose portion, the at least one gage section configured to extend longitudinally adjacent **at least a portion of the separate casing section of the casing string** when the separate casing section is secured to the casing bit,” as recited in independent claim 180.

As there is no motivation to modify the casing bit 10 of Strong et al. to include a retention sleeve 24 of Elsby in the manner proposed by the Examiner, and further that Strong et al. and Elsby, when combined, do not teach or suggest all the limitations of claim 180, Applicants respectfully assert that independent claim 180 could not have been obvious to a person of ordinary skill in the art at the time the invention was made considering Strong et al. in view of Elsby, and request that the Examiner withdraw the rejection of independent claim 180 under 35 U.S.C. § 103(a).



Furthermore, the nonobviousness of independent claim 180 precludes a rejection of claims 181 through 186, which depend therefrom, because a dependent claim is obvious only if the independent claim from which it depends is obvious. *See In re Fine*, 5 U.S.P.Q.2d 1596, 1600 (Fed. Cir. 1988), *see also* MPEP § 2143.03. Therefore, Applicants request that the Examiner withdraw the 35 U.S.C. § 103(a) obviousness rejection to claims 181 through 186, in addition to the rejection to independent claim 180.

Obviousness Rejection Based on Paper No. WOCD-0306-05 to McKay et al. (Paper No. 1) or U.S. Patent No. 6,062,326 to Strong et al. in view of U.S. Patent No. 2,215,913 to Brown

Claim 193 stands rejected under 35 U.S.C. § 103(a) as being unpatentable over Paper No. WOCD-0306-05 to McKay et al. (Paper No. 1) or Strong et al. (U.S. Patent No. 6,062,326) in view of Brown (U.S. Patent No. 2,215,913). Applicants respectfully traverse this rejection, as hereinafter set forth.

Applicants respectfully assert Paper No. 1, Strong et al., and Brown, when combined, do not describe, teach, or suggest a drilling assembly comprising “at least one of an incendiary agent, an explosive agent, and a reactive chemical **in a container affixed to at least one of the casing section and the casing bit**,” as recited in independent claim 193.

Each of Paper No. 1 and Strong et al. teaches a drilling assembly that includes a casing bit. Brown et al. teaches removing portions of a sidewall of a casing string using explosives or chemicals. *Brown*, column 2, lines 36-44. Applicants respectfully assert that, at best, it would have been obvious to one of ordinary skill in the art at the time the present invention was made to place a casing section in a well bore using a casing bit as taught by Paper No. 1 or Strong et al., and to subsequently remove a portion of a sidewall of the casing section using explosives or chemicals, as taught by Brown.

The Examiner asserts at pages 6-7 of the outstanding Office Action that:

“[i]t would have been obvious to one of ordinary skill in the art...to modify the drillable casing bit taught by McKay et al. or Strong et al. to include the explosive agent and/or chemical agent of Brown,” and that “[o]ne would have been motivated to make such a combination since the references address the narrow problem of making portions of downhole casing drillable by a subsequent drilling

operation; therefore, a person seeking to solve that exact problem would consult the references and apply their teachings together.

Applicants respectfully disagree. Applicants assert that the problem of laterally perforating a casing section, as taught by Brown, is a different problem than that of drilling through a casing bit, as taught by Paper No. 1 and Strong et al., and that each presents different and unique problems. There is no evidence that those of ordinary skill in the art would look to the teachings of prior art references dealing with laterally perforating casing sections to solve problems dealing with drilling through a casing bit.

Furthermore, Applicants respectfully assert that only the as-filed specification of the application for the present invention describes, teaches, or suggests “at least one of an incendiary agent, an explosive agent, and a reactive chemical **in a container affixed to at least one of [a] casing section [secured to a casing bit] and the casing bit.**” There is no teaching or suggestion whatsoever in Brown, Paper No. 1, or Strong et al. that explosives or chemicals may be used to render a drill bit more drillable. Furthermore, there is no teaching or suggestion whatsoever in Brown, Paper No. 1, or Strong et al. that explosives or chemicals may be provided in a container affixed within a drill bit or a casing section, as recited in claim 193. The Examiner appears to be using impermissible hindsight and considering the teachings of the present application in determining whether or not claim 193 is obvious in view of Paper No. 1, Strong et al., and Brown.

As Paper No. 1, Strong et al., and Brown, when combined, do not describe, teach, or suggest all the limitations of claim 193, Applicants respectfully assert that the differences between the invention of claim 193 and the combined teachings of the cited prior art references would not have been obvious to a person of ordinary skill in the art at the time the invention was made, and request that the Examiner withdraw the rejection of independent claim 193 under 35 U.S.C. § 103(a).

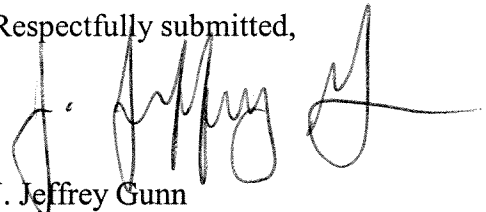
**ENTRY OF AMENDMENTS**

The amendments to claims 179 and 189 above should be entered by the Examiner because the amendments are supported by the as-filed specification and drawings and do not add any new matter to the application. Further, the amendments do not raise new issues or require a further search.

**CONCLUSION**

Claims 1 through 9, 11 through 74, 179 through 186, and 189 through 193 are believed to be in condition for allowance, and an early notice thereof is respectfully solicited. Should the Examiner determine that additional issues remain which might be resolved by a telephone conference, he is respectfully invited to contact Applicants' undersigned attorney.

Respectfully submitted,



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